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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,654	11/15/2001	Hiroshi Tanaka	Q66556	7456

7590 12/12/2003

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EXAMINER	
SONG, HOON K	

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/987,654	TANAKA ET AL.	
	Examiner	Art Unit	
	Hoon Song	2882	

-- The MAILING DATE of this communication appears on the cover sheet with th corr spondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20 and 22-33* is/are rejected.

7)☐ Claim(s) *3 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Objections

Claim 3 is objected to because of the following informalities: change "the tile" to "a tile". Appropriate correction is required.

Claim 21 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim 4. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 6, 13, 18 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Watanabe (US 6325537B1).

Regarding claim 6, Watanabe teaches a two dimensional radiation image detection device capable of recording a radiation image equipment with an angular output means that output an angular signal which represents the degree of tilt of the radiation emitted from a radiation source in relation to the detection surface of said radiation image detection device (column 6 line 3+ and 39+).

Regarding claim 13, Watanabe teaches that said image detection device comprises a stimulable phosphor sheet.

Regarding claim 18, Watanabe teaches that said image detection device is located at a distance from a subject being imaged.

Regarding claim 28, Watanabe teaches that said angular signal output means is an electronic level (figure 14).

Claims 7, 14, 19, 26 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Nambu et al. (US 6196715B1).

Regarding claim 7, Nambu teaches a two dimensional radiation image detection device capable of recording a radiation image equipped with a command means that generate an exposure command to the radiation source when the tilt of the radiation to be emitted by a radiation source in relation to the detection surface of said radiation image detection device is substantially perpendicular (column 18 line 31+ and column 27 line 10+, note: since the system is marinating relationship between x-ray source and detector in perpendicular x-ray is exposed when they are in perpendicular).

Regarding claim 14, Nambu teaches that said image detection device comprises a stimulable phosphor sheet.

Regarding claim 19, Nambu teaches that said image detection device is located at a distance from a subject being imaged.

Regarding claim 26, Nambu teaches a scattering ray removal grid board adjacent to the radiation image detection device which prevents the occurrence of false images

and enhances image reproducibility after radiation has been transmitted through a subject.

Regarding claim 29, Nambu teaches that said angular signal output means is an electronic level (figure 14).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe.

Regarding claim 25, Watanabe fails to teach a grid on the radiation image detection device.

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to adapt well known anti-scatter grid on detector in order to provide better image.

Claims 2, 5, 8, 11, 16, 23, 30are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe in view of Pattee (US 6142667).

Regarding claim 8, Watanabe fails to teach said device is portable.

Pattee teaches a C-arm x-ray imaging system having wheels.

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to make movable C-arm x-ray imaging system in order to take x-ray image at any convenience location for patient and x-ray taking personnel.

Regarding claim 30, Watanabe fails to teach that the system is carriable.

Pattee teaches a C-arm x-ray imaging system having wheels.

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to make movable C-arm x-ray imaging system in order to take x-ray image at any convenience location for patient and x-ray taking personnel.

Regarding claim 2, Watanabe teaches a radiation imaging system comprising:

a radiation source; and

a two dimensional radiation image detection device that records a radiation image by detecting the radiation emitted from said radiation source and is transmitted through a subject;

further comprising:

an angular signal output means (computer) that outputs an angular signal which represents the degree of tilt of the radiation emitted from said radiation source in relation to the detection surface of said radiation image detection device (figure 2); and

a tilt adjustment means that adjusts said tilt of the radiation in relation to the detection surface of the radiation image detection device to become substantially perpendicular by changing the tilt angle of said radiation image detection device based on said angular signal output from said angular signal output means (column 6 line 3+ and line 39+).

However Watanabe fails to teach that the system is carriable.

Pattee teaches a C-arm x-ray imaging system having wheels.

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to make movable C-arm x-ray imaging system in order to take x-ray image at any convenience location for patient and x-ray taking personnel.

Regarding claim 5, Watanabe teaches a shift means that enables horizontal movement of the radiation image detection device (figure 9).

Regarding claim 16, Watanabe teaches that said image detection device is located at a distance from a subject being imaged (figure 8).

Regarding claim 11, Watanabe fails to teach that said image detection device comprises a stimulate phosphor sheet.

Regarding claim 23, Watanabe fails to teach a grid on the radiation image detection device.

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to adapt well known anti-scatter grid on detector in order to provide better image.

Claims 1, 3-4, 9-10, 12, 15, 17, 20, 22, 24, 27 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nambu in view of Pattee.

Regarding claim 9, Nambu fails to teach said device is portable.

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to make movable C-arm x-ray imaging system in order to take x-ray image at any convenience location for patient and x-ray taking personnel.

Regarding claim 31, Nambu fails to teach that the system is carriable.

Pattee teaches a C-arm x-ray imaging system having wheels.

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to make movable C-arm x-ray imaging system in order to take x-ray image at any convenience location for patient and x-ray taking personnel.

Regarding claims 1, Nambu teaches a radiation imaging system comprising:

a radiation source; and

a two dimensional radiation image detection device that records a radiation image by detecting the radiation emitted from said radiation source and is transmitted through a subject;

further comprising:

an angular signal output means that outputs an angular signal which represents the degree of tilt of the radiation emitted from said radiation source in relation to the detection surface of said radiation image detection device (column 18 line 31+); and

a tilt adjustment means that adjusts said tilt of the radiation in relation to the detection surface of the radiation image detection device to become substantially perpendicular by changing the tilt angle of said radiation source based on said angular signal output from said angular signal output means (column 27 line 10+).

However Nambu fails to teach that the system is carriable.

Pattee teaches a C-arm x-ray imaging system having wheels.

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to make movable C-arm x-ray imaging system in order to take x-ray image at any convenience location for patient and x-ray taking personnel.

Regarding claim 4, Nambu teaches a shift means that enables horizontal movement of the radiation source (figure 5).

Regarding claim 10, Nambu teaches that said image detection device comprises a stimulable phosphor sheet.

Regarding claim 15, Nambu teaches that said image detection device is located at a distance from a subject being imaged.

Regarding claim 20, Nambu teach said tilt adjustment comprises screws or geared teeth.

Regarding claim 22, Nambu teaches a scattering ray removal grid board adjacent to the radiation image detection device which prevents the occurrence of false images and enhances image reproducibility after radiation has been transmitted through a subject.

Regarding claim 27, Nambu teaches that said angular signal output means is an electronic level (figure 14).

Regarding claims 32 and 33, Nambu teaches that said angular signal output means is integral with said two dimensional radiation image detection device

Regarding claim 3, Nambu teaches a radiation imaging system comprising:

a radiation source; and

a two dimensional radiation image detection device that records a radiation image by detecting the radiation emitted from said radiation source and i s transmitted through a subject ;

further comprising:

a command means (computer) that generates an exposure command to said radiation source when a tilt of the radiation to be emitted from said radiation source in relation to the detection surface of said radiation image detection device is substantially perpendicular (column 18 line 31+ and column 27 line 10+, note: since the system is marinating relationship between x-ray source and detector in perpendicular x-ray is exposed when they are in perpendicular).

However Nambu fails to teach that the system is carriable.

Pattee teaches a C-arm x-ray imaging system having wheels.

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to make movable C-arm x-ray imaging system in order to take x-ray image at any convenience location for patient and x-ray taking personnel.

Regarding claim 12, Nambu teaches that said image detection device comprises a stimulable phosphor sheet.

Regarding claim 17, Nambu teaches that said image detection device is located at a distance from a subject being imaged.

Regarding claim 24, Nambu teaches a scattering ray removal grid board adjacent to the radiation image detection device which prevents the occurrence of false images

and enhances image reproducibility after radiation has been transmitted through a subject.

Response to Arguments

Applicant's arguments with respect to claims 1-33 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon Song whose telephone number is 703-308-2736. The examiner can normally be reached on 8:30 AM - 5 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on 703-308-4858. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Hoon Song HKS

DAVID V. BRUCE
PRIMARY EXAMINER